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Containment of a Community-Wide Hepatitis A Outbreak Using Hepatitis A Vaccine

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The Problem

Hepatitis A Virus (HAV), an RNA virus in the picornavirus family with an incubation period of 15 to 45 days, causes an acute systemic illness that may include anorexia, nausea, vomiting, fatigue, headache, malaise, arthralgias, myalgias, photophobia, pharyngitis, cough, coryza, low grade fever, dark urine, clay-colored stools, and jaundice.[1] HAV is usually transmitted by the fecal-oral route. Close personal contact (e.g., living with or having sexual contact with an infected person, children exposed in day care centers), poor hygiene, and overcrowding contribute to its spread. Ingestion of contaminated food and water, blood exposures (e.g., injecting drug use or blood transfusion), and swimming in contaminated pools or lakes can also serve as vehicles of transmission of the virus.[2]

Cyclical community outbreaks have historically occurred every 5 to 7 years in Northern Plains Indian communities.[3,4] This report will describe use of hepatitis A vaccine to contain such an outbreak.

Outbreak

The index case for an outbreak on the Lower Brule Sioux Reservation (population 1800) was a 9-year-old male child living in a farming community adjacent to the reservation, who became ill in mid-October 1995. This boy had relatives from another reservation community (approximately 150 miles away from Lower Brule) where HAV had been "epidemic" during the preceding 12 months (personal communication, Dr. Margaret Upell, October 1995). This was the only known contact for this child's case.

Subsequently, a total of 21 cases of hepatitis A were identified from October 1995 to the end of February 1996. There have been no new cases since that time. Fourteen of the cases (67%) were managed by the Lower Brule Indian Health Service (IHS) Health Center, an ambulatory facility, and 7 cases (33%) required hospitalization.

Eight of the 21 cases were relatives of one extended Lower Brule family. All affected were Native Americans with the exception of one, a 39-year-old female who was a baby-sitter for some of this family cluster of eight cases.

Figure 1 shows the age and date of diagnosis for each of the 21 cases, and indicates those who were hospitalized. Twelve of the 21 people affected were female, 9 (43%) were male.

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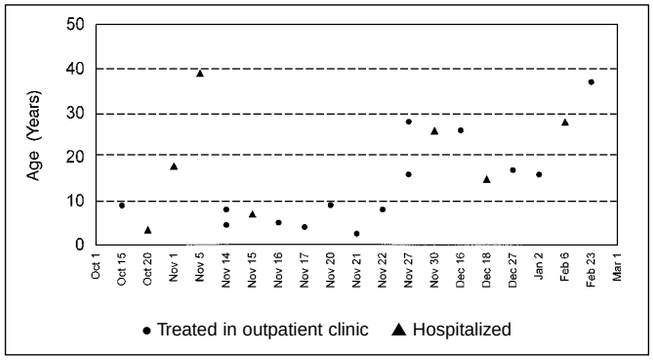
Figure 1. Age, date of diagnosis, and treatment (inpatient versus outpatient) for the 21 identified cases of hepatitis A, Lower Brule, South Dakota.



Action Taken

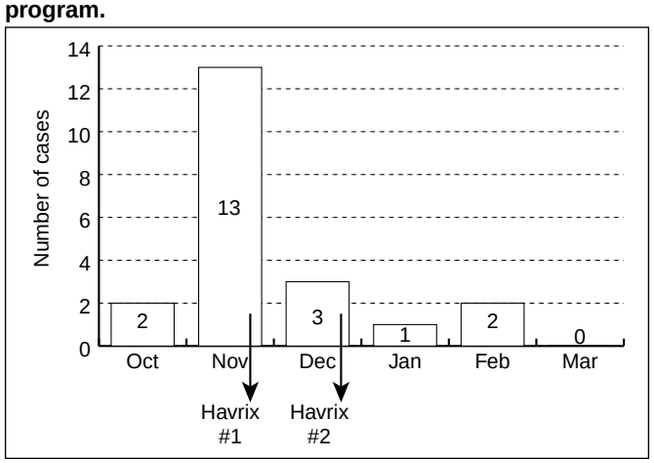
To contain the outbreak, family members and household contacts of active cases were given immune globulin; no serologic testing was done. In addition, 336 (approximately 80%) Lower Brule children between the ages of 2 and 12 received hepatitis A vaccine (HAVRIX, 360 ELISA units; SmithKline Beecham) in mid-November, also without serologic testing. An attempt was made to vaccinate all Lower Brule children between the ages of 2 and 12 years, but a number of things (including lack of transportation, and poor compliance) prevented us from reaching this goal. Some of the children who received the HAVRIX vaccine were contacts to active cases and had also received gamma globulin prophylaxis.

Approximately one-third of the HAVRIX doses were administered in the Lower Brule clinic, and two-thirds in the schools. Two-hundred eleven (211/336; 63%) children received the recommended second dose of HAVRIX in mid-December 1995, with 16 more doses of HAVRIX administered by the time of this writing. The lower compliance rate for the second dose may be related to the fact that the outbreak was subsiding by mid-December, and people may have viewed the situation as less urgent. The third dose to complete the series was scheduled for mid-May 1996.

No serologic testing was performed on these children because there had not been an epidemic of HAV in Lower Brule in 15 years and it was assumed that most children had had no prior exposure to the virus, were susceptible to infection, and thus required immunization. Adult HAVRIX (1440 ELISA units/ml) was offered to the local food handlers (e.g., in Head Start programs, day care centers, Lower Brule schools, and casino restaurants) in November 1995 as a precaution. No food preparers were infected.

This outbreak of hepatitis A was likely transmitted by the 9-year-old index case who was also cared for by the baby-sitter mentioned above. Day care centers have been reported to be frequent sources of hepatitis A outbreaks due to the close contact of preschool children, especially those in diapers, which promotes fecal-oral transmission of the virus.[1] There was no evidence of waterborne transmission of the virus.

Figure 2. Number of cases of hepatitis A diagnosed per month in relation to implementation of an immunization program.



Discussion

Immune globulin is 80% -90% effective in preventing clinical hepatitis A when administered before exposure or early (within 14 days of exposure) in the incubation period.[2] HAVRIX is highly immunogenic, inducing anti-HAV titers above those observed following administration of immune globulin in more than 99% of adults. In clinical trials the efficacy of the vaccine in protecting children from clinical hepatitis A was 94%.[2]

In the outbreak described in this paper, gamma globulin (administered to household contacts of active cases) and HAVRIX (given to most reservation children between 2 and 12 years of age) in concert with the usual hygiene and health education measures, seemed to effectively arrest the epidemic. Figure 2 illustrates the impact of this strategy on the number of new cases found. No cases of hepatitis A occurred in persons who received the HAVRIX vaccine.

In conclusion, hepatitis A vaccine,* in conjunction with human globulin, health education, and good hygiene, is the recommended strategy for dealing with hepatitis A outbreaks.

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* On March 29, 1996, the U.S. Food and Drug Administration granted licensure to Merck & Co. to market its VAQTA (hepatitis A vaccine, inactivated).

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Program Evaluation
Mammography at Shiprock, 1991-1994

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"It starts as small as a grain of rice," said health educator Margaret W. in Navajo to the elderly women who stood silently at her table at the Shiprock health fair. She hands them each a pamphlet on mammography and a small sachet of rice and scented flower petals as a reminder. "In Navajo, the word, 'cancer,' means the 'sore that never heals.' Times have changed. Breast cancer starts as a growth as small as a grain of rice. You can't feel it, but this special x-ray can see it. If a woman has this disease, she can be treated and the cancer can be healed."

Introduction

While program evaluation has always been important, shrinking dollars and an increasing service population add to the urgency of assuring cost-effectiveness of all health care activities. How do we know that a program we have instituted is working? Should we risk spending more money and exerting more effort for a program that may not be achieving its goals? Will midcourse corrections help? When is a good time to evaluate a program? Can a program be well implemented and yet produce little impact? What methods can be used to evaluate the success of an intervention?

Program evaluation investigates the implementation (formative evaluation) and impact (outcome evaluation) of a health-care intervention. There is no one correct way to evaluate a program, but almost all evaluations examine both implementation and impact.[1]

Implementation evaluation looks at how efficiently, thoroughly, and promptly a program evolved from the planning to the operating stage. Questions addressed by implementation evaluation include: How closely (and at what cost?) does the existing program reflect the intent and design of its planners? How quickly was the program up and running? What modifications were made along the way?

Evaluation of program impact looks at outcomes. Although a program may be smoothly implemented and functioning well, is it making a difference in outcomes?

Asking good and relevant questions is the first step in program evaluation. Good questions guide the collection of data (baseline and interim), help to structure surveys, and direct data analysis. With these tools, a good evaluation enables the administrators of a program to identify and solve problems that may have prevented the program from achieving its goals.

With these ideas in mind, the authors, both being women's health care providers, set out to evaluate the mammography program instituted in 1991 at the Shiprock Hospital (now the Northern Navajo Medical Center).

Background

The incidence of breast cancer is rising dramatically in the general population, although objective data for rates in Native Americans are difficult to come by. The projected "lifetime incidence" for a woman is about 1 in 10, with 50% of women having regional metastasis at the time of initial diagnosis.[2] Breast cancer is second to cardiovascular disease as a leading cause of death in women over the age of 50, and is the leading cause of death in women ages 40 to 44.[3]

Although controversy exists about the effectiveness of screening mammography in women ages 40 to 49, there is conclusive evidence to support its role in mortality reduction in women over the age of 50, reducing mortality 30% in pre-

viously unscreened populations.[2] Mammography can detect focal breast cancers as small as 1 mm, one-tenth the size of the 1 cm palpable breast mass. Early detection and treatment may prevent spread from regional lymph nodes to distant sites.

Early detection of breast cancer is based upon three activities: annual clinical breast examination, breast self examination (BSE), and screening mammography. Two of these three components have existed in some fashion for many years at the Shiprock PHS Indian Hospital: annual clinical examination and patient education to promote BSE.

Mammography At Shiprock

A mammography program was instituted in 1991 at the Northern Navajo Medical Center as a direct consequence of the passage in 1990 of Public Law 101-354, the Breast and Cervical Cancer Mortality Prevention Act. That law empowered the Centers for Disease Control and Prevention (CDC) to provide substantial funding at the state level to increase breast and cervical cancer screening and follow-up services for underserved women: the elderly, the uninsured, and members of racial and ethnic minorities.[4] Funding from the CDC was granted to qualified states to support these services. In New Mexico, this funding is administered by the Breast and Cervical Cancer Detection and Control Program (BCCDCP), located in Albuquerque. The BCCDCP directs these funds to specific sites, including seven IHS service units (Shiprock, Gallup, Zuni, Crownpoint, Albuquerque, Santa Fe, and Acoma-Canoncito-Laguna).

All of these service units had some programs and personnel in place for prevention and detection of cervical cancer. However, none had screening mammography capability nor an organized breast cancer detection program.

Members of Shiprock's Women's Cancer Prevention Project (WCPP) felt that community input, awareness, and education were key to acceptance of mammography by the Navajo community. At the initiation of the project, surveys were conducted in the hospital and clinics, and focus groups with women in the community were formed to evaluate issues of concern about the use of this new procedure. Concerns raised included inconvenience, discomfort, time needed for the procedure, fear of radiation exposure, and traditional cultural concerns about looking for illness when one is feeling healthy.

Headed by our Navajo-speaking health educator, promotional activities were designed to address these issues. Radio public service announcements were used. Community health representatives (CHRs) met with women at community and senior centers to further discuss concerns. Providers were encouraged to offer information and give patients the opportunity to ask questions.

Since Shiprock had no on-site mammography capability, the BCCDCP negotiated a contract with a private vendor in Albuquerque to provide mammography services one week each month using a mobile van; the contract allowed for the same services at other IHS sites. (Initially Shiprock reimbursed the contractor from grant funds from the state office; later, the BCCDCP paid the contractor directly.) The cost of a screening mammogram was approximately $60.

A detailed description about implementation of the mammography program and other aspects of the project has been published previously in *The Provider*.[5]

Evaluation of the Mammography Program

As noted above, new health interventions should be evaluated for both implementation and impact. Key questions can help to simplify and direct an evaluation. A review of the implementation of the program considered the following questions: How was funding made available to and utilized by the program? In a population with no prior mammography experience and possibly a different cultural approach to prevention, what methods were utilized to communicate with and motivate patients to obtain the service? With no existing mammography services, what options were explored, and why was the decision made to utilize a mobile van service?

Evaluation questions that required further study included:

Implementation

Mammograms were taken in Shiprock, read in Albuquerque, and the results returned to Shiprock.

1. How effective has the communication been between the health care providers, the contractor, and the Health Promotion and Disease Prevention Department at Shiprock, which coordinated scheduling and follow-up?
2. Are providers satisfied with the quality of mammograms and the system of patient follow-up?
3. Is an adequate system in place to track patients who fail to keep appointments?

Impact

1. Are eligible women using the mammography service? Are patients satisfied with the service?
2. How does the percentage of eligible women who get mammography screening at Shiprock compare with other IHS facilities in New Mexico? How does this percentage compare to national figures for mammography screening?
3. During the 3-year period, November 1991 through October 1994, how many breast cancer cases were detected? How many of these cases were initially detected by mammography?
4. How does the incidence of breast cancer and other breast cancer parameters in this population compare to other populations in New Mexico and throughout the U.S.?
5. Has the increased focus on breast disease since initiation of the program had any impact on providers to promote breast self-examinations (BSE) and provide clinical breast exams?

Potential Recommendations

l. What can be learned from the evaluation to improve the program, and how can this best be communicated to the staff?

Methods

Descriptive information about implementation of the project was gathered from a review of pertinent project records and interviews with members of the WCPP.

Surveys are a useful evaluation tool to gather information about patient and provider satisfaction and perceptions. They are also helpful to elicit suggestions for change. For our evaluation, two formal surveys were conducted. The first was a written questionnaire administered to patients who underwent mammography screening in October 1994. Translation was provided to patients who spoke only Navajo. The questionnaire gathered information about demographics, attitudes toward mammography, and satisfaction with the mammography service.

A second questionnaire was administered in December 1994 to the providers at the hospital who used the mammography service. The questionnaire was followed up with interviews of members of the Departments of Radiology and Surgery.

The Health Promotion and Disease Prevention (HPDP) Department provided service unit population and mammography usage data. Comparison data for mammography usage from other IHS service units were obtained from the BCCDCP in Albuquerque. Chart review of breast cancer cases provided pertinent demographic and clinical data. The New Mexico Tumor Registry, at the University of New Mexico in Albuquerque, provided breast cancer data for the state of New Mexico.

In order to detect the possible impact of the mammography program on provider teaching of BSE and performance of clinical breast exam, the HPDP Department looked at ambulatory care (Departments of Internal and Family Medicine) records during the years of the study. A small sample (about 10% of the volume of patients seen over a several week period) of charts of women over 40 years of age was reviewed for each year for documentation of teaching of the BSE or performance of the clinical exam. The Department of Obstetrics and Gynecology was not included in the study, since its BSE teaching and clinical exam rates already exceeded 90% at the initiation of the study period.

Results

Patient satisfaction. In October 1994, almost three years into the project, the WCPP at Shiprock administered a patient satisfaction survey to the 103 patients who had mammography that month; 71 patients completed the questionnaire. Generally, patient satisfaction and tolerance of the mammogram procedure were good. When asked about discomfort of the procedure, 87% reported no discomfort and only 8% reported significant discomfort or pain. All of the patients were satisfied with their treatment by the mobile van staff; 98% felt the waiting room was adequate, and 80% felt the waiting time was acceptable.

The majority, about 89%, had been referred by a doctor or a nurse for mammography. Only about 10% came in on their own because they were self-motivated for prevention or concerned about a lump. Suggestions for improvement of the service included incorporating the service into the hospital facility, better temperature control in the van, and provision of music and coffee in the waiting room.

Provider satisfaction. Responses on the provider questionnaires and during interviews centered on logistical issues, specifically the difficulties involved in obtaining timely consultation from a distant provider (the contractor) and achieving effective follow-up coordination between the contractor, the HPDP Department, and the providers.

Initially, the HPDP Department was notified if a patient had an abnormal mammogram. Patients with abnormal films were given a surgery clinic appointment, and abnormal films were sent from the contractor in Albuquerque to be reviewed at the follow-up appointment. However, particularly in the first year or so of the project, the patient, mammogram, and surgeon often did not connect at the appointed time and place. Some providers expressed frustration with the difficulty of obtaining films promptly and the inability to talk in person with the radiologist who read the film.

Providers believed they were notified inconsistently about their patient's results. For the first two years of the project, there was no satisfactory system to track patients with abnormal films, particularly for those who failed to keep their appointments.

The contractor generated patient letters for normal mammograms and an annual mammography reminder. These letters were sent to the HPDP Department and forwarded to individual providers to send to patients. However, providers believed that not all women received these letters, probably because of the multiple steps involved.

Overall, 63% of the providers were satisfied with the mammography service and follow-up system. Seventy-five percent felt strongly that the Shiprock Service Unit should obtain in-house mammography capability and offered reasons such as patient convenience, possible diagnostic mammography capabilities, better coordination of services, and, possibly, less expense.

Utilization of the service. What success did the project have to convince women over 40 to come in for mammography? The 1990 census tabulated 4756 women over 40 years of age in the service unit. Data from the first three years of the project are shown in Table 1. During that 3-year period, 2984 individual women (63% of the women over 40) received at least one mammogram.

How did Shiprock do in comparison to other IHS sites in New Mexico who were also participating in the grant? Data provided by the BCCDCP for women over 50 (the previous table reflects data for women over 40) for the third year of the project show that all IHS sites in New Mexico performed similarly. Percentages ranged between 16% and 31%, with Shiprock at 25% (Table 2).

Table 1. Number (percent) of women over 40 years of age living in the Shiprock Service Unit screened by mammography.

Year Screened	Number (%)
Year 1 (11/91-10/92)	1352 (28.0)
Year 2 (11/92-10/93)	1263 (26.5)
Year 3 (11/93-10/94)	1516 (31.0)

Table 2. Percent of American Indian women over age 50 receiving mammograms at various IHS sites in New Mexico, November 1993 through October 1994.

Site	Percent
Site 1	31%
Site 2	28%
Shiprock	25%
Site 4	16%

The quality of mammography could not be easily evaluated by the reviewers, but one indirect measurement, the percentage of recall for abnormal mammograms, yields some information. Recent guidelines for mammography published by the U.S. Department of Health and Human Services indicate that in most large reported series the recall rate is 10% or less.[6] A recall rate that is too high (too many false positives) can adversely affect cost effectiveness and credibility of mammography; a rate too low (too many false negatives) may miss early cancers. Available data from the contractor on the Shiprock patients indicated a recall rate of 8%. This is well within acceptable limits and also consistent with other published data on the lower recall rate in Native Americans.[4]

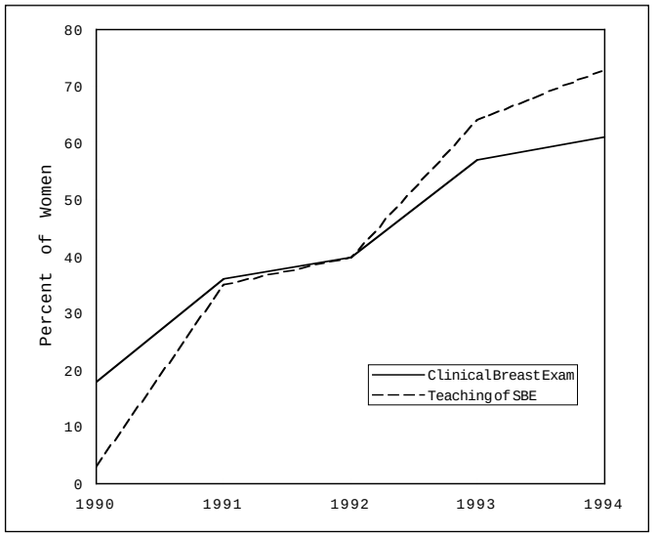
Provider performance. It is important to remember, as noted in the introduction, that detection of breast cancer is not limited to mammography alone, but also depends on BSE and clinical examination. Since initiation of mammography, the WCPP worked with providers and the community to stress the importance not only of mammography but of BSE and clinical examination. Figure 1 shows the improvement by providers in the performance of clinical breast exam and the teaching of BSE.

Discussion

Incidence of breast cancer. Data suggest that there is a lower incidence of breast cancer in American Indian and Alaska Native women than in U.S. white women. A recent study[7] using IHS hospital discharge data from 1980 through 1987 indicates a breast cancer incidence of 105/100,000 in the U.S. white population and 30.2/100,000 for 10 of the 12 Indian Health Service Areas combined. Several factors are associated with an increased risk for breast cancer including nulliparity, late onset of childbirth, limited history of lactation, higher economic status, and urban residence, all of which are generally less common in Native American women.

During the first three years of the project at Shiprock, 28

Figure 1. Performance of clinical breast exams and teaching of BSE, by year.

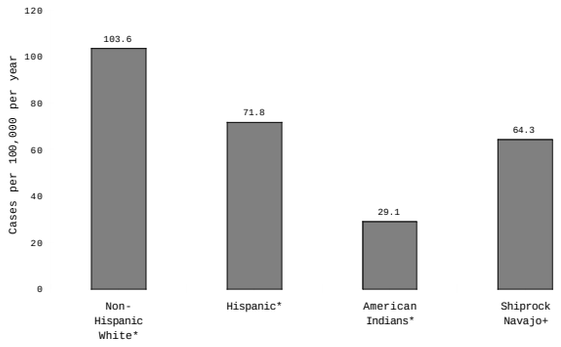


women who resided in the Shiprock Service Unit were diagnosed with breast cancer. Twenty-two women either came in to clinic complaining of "a lump in my breast," or a mass was found by the examining provider; six cancers were picked up on mammography alone. Using these 28 cases as our numerator, and population projections for 1992/1993 from 1990 Shiprock Service Unit census data, age-adjusted to the 1970 standard million, for the denominator, we calculated the breast cancer yearly incidence during the 1991-1994 period under evaluation to be 64/100,000.

Statistics from such small numbers should be viewed cautiously, and there are at least two factors that may affect the reliability of these figures. The number of cases detected may be an underestimate since some fraction of our service population seeks initial and follow-up care in the nearby town of Farmington. On the other hand, since Shiprock was introducing mammography and increasing its advocacy for clinical breast exams and BSE in a previously unscreened population, the incidence rate for the first several years of the program may be overestimated by detecting previously undiagnosed cases. Regardless, it is probably safe to conclude that the Shiprock breast cancer incidence is lower than in the U.S. white population. Figure 2 shows the age-adjusted breast cancer incidence rates for various groups in the state of New Mexico (personal communication, Charles Key, MD, PhD, NM Tumor Registry, 1995) and for the Shiprock Service Unit.

One final way to look at the incidence of breast cancer is to look at the rate of breast cancer cases detected for 1000 mammograms done. Shiprock's rate of 1.45/1000 is lower than the rate of 2-10/1000 seen in larger studies of the general population and noted in the mammography guidelines.[6]

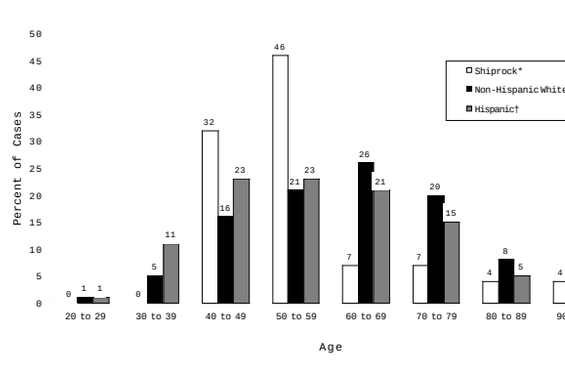
Figure 2. Age-adjusted breast cancer incidence rates in non-Hispanic whites, Hispanics, and American Indian females in New Mexico (1988-1992), compared to American Indian females at Shiprock (11/91-11/94).



* New Mexico Tumor Registry, 1988-1992.
\+ Data from current study (11/91-11/94), adjusted to 1970 standard million.

Age distribution of breast cancer. Also of interest is the age distribution of the Shiprock breast cancer cases. Figure 3 shows the age distribution of cases at Shiprock compared to the age distribution in non-Hispanic white and Hispanic populations (personal communication, Charles Key, MD, PhD, 1995). The age distribution of breast cancer in the non-Hispanic white population peaks in the 60s and 70s, reflecting a similar trend at the national level whereas at Shiprock, the age distribution of breast cancer peaks at an earlier age, the 40s and 50s.

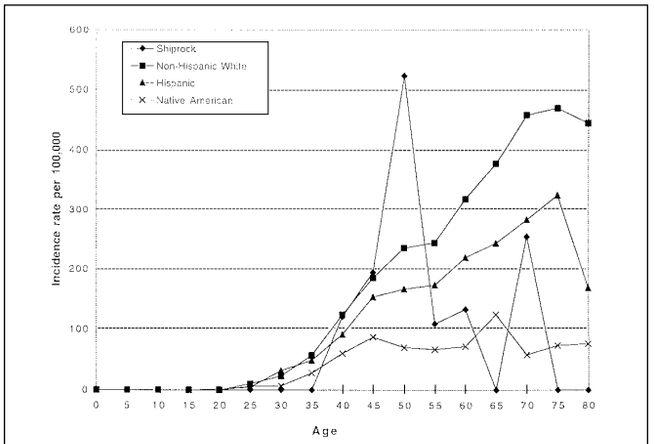
Figure 3. Age distribution of breast cancer cases in non-Hispanic white and Hispanic females in New Mexico (1969-1993), compared to American Indian females at Shiprock (11/91-11/94).



* New Mexico Tumor Registry, 1969-1993.
\+ Data from current study at Shiprock, 11/91-11/94.

To further evaluate this trend, age-specific rates at five year intervals were calculated for the different populations in New Mexico, and are shown in Figure 4. It is important to calculate age-specific rates since both the American Indian and Hispanics are, compared to non-Hispanic whites, proportionally a much younger population, and relying only on the age distribution of cases may reflect population demographics and not true age incidence. Non-Hispanic white, Hispanic, and American Indian data were provided by the New Mexico Tumor Registry. Shiprock rates are adjusted to 1990 Census figures.

Figure 4. Age-specific breast cancer rates in non-Hispanic whites, Hispanics, and American Indian females in New Mexico (1988-1992) compared to American Indian females at Shiprock (11/91-11/94).



* New Mexico Tumor Registry

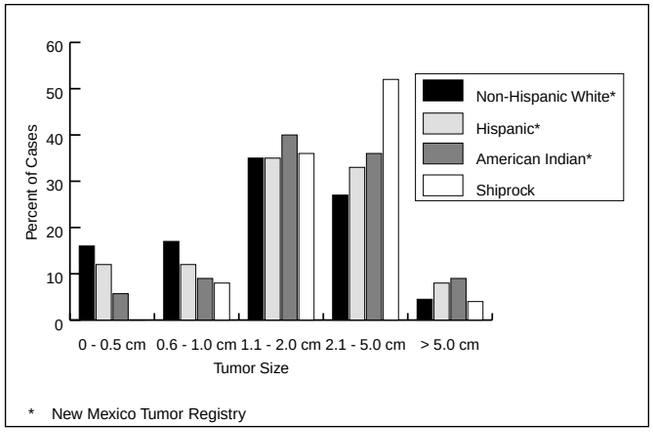
Both non-Hispanic white and Hispanic women demonstrated increasing breast cancer rates as they aged. Overall, American Indian women in New Mexico (Figure 4) had lower breast cancer incidence rates than non-Hispanic white and Hispanic women for all age groups. However, Shiprock women demonstrated a peak incidence in the 45-55 year age group. Again, it is important to remember that the Shiprock numbers have certain limitations that might introduce error or bias: small numbers of breast cancer cases and using a previously unscreened population. Although the absolute age-specific rates may not be reliable, the trend toward a younger onset of breast cancer in Navajo women, compared to other populations, may be real. It will be important to evaluate this finding in subsequent years as more of the Navajo population across the reservation is introduced to mammography.

Tumor size. Figure 5 shows tumor size at diagnosis in New Mexico. Although, again, Shiprock numbers are small, our patients had larger tumor sizes at diagnosis, as compared to non-Hispanic whites and Hispanics; this is consistent with other American Indians in the state (personal communication, Charles Key, MD, PhD, 1995).

Rates of mammography. An expected letdown after the first year of intense publicity and community outreach might account for the small decrease in mammograms done during the second year. The third year showed a 12% increase over the first year, but there is considerable room for improvement. As a comparison, a recent study by the National Center for Health Statistics in a population with some similarities to Shiprock (women ages 50 to 64 with 12 or fewer years of education and

fee-for-service coverage) noted that 50% had received mammograms in the previous year (1992).[8] The same study noted that 60% of women, ages 50-64, enrolled in Health Maintenance Organizations, regardless of education level achieved, had had a mammogram in that year. *Healthy People 2000* targets a goal of 60% for women 50 years and older to have received a mammogram in the previous 1 to 2 years.[9] Shiprock and the other IHS sites, as seen in Table 2, have some work to do to achieve this goal.

Figure 5. Breast cancer tumor size at time of diagnosis in non-Hispanic white, Hispanic, and American Indian females in New Mexico (1988-1992), compared to American Indian females at Shiprock (11/91-11/94).



Cost-effectiveness. Breast cancer rates detected by mammography alone, and the total number of cases, are low relative to the rates found in the general population. This is consistent with the lower incidence of cancer in general in American Indians and Alaska Natives.[7] Because of the lower incidence, the cost-effectiveness of mammography in the Navajo and other Native American populations is probably lower than in the general population. The cost of the mammography program was reviewed, with an average cost (mammography services) of $11,000 per cancer detected (includes all 28 breast cancers found during the study period) and over $24,000 per cancer detected that was less than 1 cm in size. A full cost-effectiveness analysis is beyond the scope of this report, since it would involve cost of treatment, survival analysis, etc. Provocative questions have been raised about applying uniform clinical policies to populations having different baseline disease rates, stage at diagnosis, and stage-specific survival.[10] On the other hand, the authors conjecture that the incidence of breast cancer may increase as more mainstream lifestyle patterns are adopted by Native American communities.

Conclusion

An adequate program evaluation should be able to answer the following questions. Were the original goals and objectives achieved? What components of the program are weak and need improvement? What new measures or improvements could strengthen the program? Using some of the tools of program evaluation (surveys, data analysis, review of patient charts and project records) we attempted to answer some of these questions.

Progress toward achievement of the original goals of the program (to introduce mammography into the community, to heighten community knowledge and concern about breast cancer, and to begin to have an impact on breast cancer detection) has been encouraging. Searching for and finding some solutions to cultural barriers enabled the WCPP, with the support of the providers and the community, to successfully introduce mammography.

Shiprock was fortunate to find a flexible and patient-friendly private mammography service to provide the screening services. The state project headquarters, the BCCDCP, played a critical intermediary role between Shiprock and the contractor. However, the great distance from and slow reporting by the contractor in Albuquerque to the Shiprock providers contributed to significant delay and confusion in patient follow-up in the early part of the program. While many of these logistical problems have been solved, or at least improved, some may be intrinsic to off-site performance and reading of mammograms.

Current efforts to improve the program center on ways to improve feedback of results to providers, to develop a model to remind patients who have entered the system to return for annual exams, and to continue to motivate providers to encourage their patients to obtain mammograms.

Better communication between the contractor and the Shiprock HPDP Department has insured that results and films are available for key follow up appointments. A tracking system is now in place to follow up on patients with abnormal results who fail to keep appointments, and many providers have chosen to follow up their patients' abnormal results on their own. However, a satisfactory facility-wide system of annual reminder notices is still not in place. Efforts are ongoing to remind providers to encourage their patients to obtain mammograms; providers receive periodic reminders, including the monthly mammography schedule. Studies have noted, and our patient survey has confirmed, that the primary motivation for a patient to seek mammography is their provider's recommendation.[11]

Finally, the results of an evaluation must be presented to those who are responsible for continued management of the program, providing them with pertinent information, so they can institute effective changes. The findings of this evaluation were presented to the medical and administrative staff at Shiprock at a recent staff meeting.

A strong recommendation by this evaluating team, supported by the medical staff, is the development of in-house mammography. While our patient survey showed a high degree of satisfaction with the mobile van service, we still fall short of annually screening 60% of our eligible population,

the goal advocated by *Healthy People 2000.* Daily, on-site accessibility of mammography could provide the means to reach this goal. In-house mammography would also obviate many of the logistical problems involved with off-site mammography and offer the potential for diagnostic mammography services. The recent addition to the staff of a radiologist trained in mammography, the increased patient use of our new facility, and the strong support of the medical community, all argue for addition of on-site mammography. However, this must be balanced with the costs of purchasing a mammography unit, the upkeep of the unit, adherence to standards, training of new technicians, and an increased workload for current staff.

Discussions about the future of mammography at Shiprock are ongoing. The funding for the CDC program was designed to last for five years, and now, in 1996, is nearing its completion. The continuation of long term funding is uncertain. Critical decisions must be reached by Shiprock's providers and administration; these decisions should be based on feasibility, cost, patient satisfaction and needs, personnel requirements, and clinical efficiency.

Program evaluation can provide valuable data so that rational decisions can be made. It can also serve as a catalyst to motivate and enable providers and health planners to develop their programs to their fullest and most appropriate potential.

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LETTER TO THE EDITOR ®

My name is Todd Hansen and I am a long term care consultant. I have worked on several projects relating to nursing homes with the Indian tribes in the IHS Billings Area. I was delighted to receive a copy of your special issue on elderly care [May 1996] among the Indians. I have been working on an application for Certificate of Need for the Crow Tribe in Montana to build a 40-bed nursing home at Crow Agency, and your issue arrived just in time for us to use some of the data in our State hearings last week.

This has been a very interesting process. Not all states still have Certificate of Need laws on the books for nursing homes, but Montana does. There is some question about a state's rights to limit, restrict, or control a tribe's intent to build a nursing home on their own reservation. However, for Medicare and Medicaid certification, it seems that they (the state) must be involved in the process.

If we are successful in this process, there will be one more tribally-operated nursing home, the third in the Billings Area.

Your issue raised some interesting ideas. I think there is a lot of research yet to be done on what impact nursing homes have on a reservation. How are they perceived by the residents, the staff, and the community? Is the life span of American Indians prolonged if they are in an Indian-owned nursing home on the reservation, as opposed to remaining at home or being placed into a nursing facility off of the reservation, away from their homes?

I have been involved in research on different nursing home issues, and this topic intrigues me greatly. I have operated nursing homes for many years, but never on a reservation.

Thank you again for the timely issue.

Todd Hansen
Billings, MT

CONTINUING EDUCATION MATERIALS AVAILABLE ®

The IHS Clinical Support Center has continuing education materials available, at no charge, for health care professionals employed by Indian health programs. To make it easier for you to request these materials, we will describe what is available and provide an order form several times a year in *The Provider.*

Individual Format

"Home Study Modules" are designed for use by physicians, nurses, nurse practitioners, physician assistants, and pharmacists. To obtain continuing education credits, an individual must read the materials in the module, take and pass the post-test, and complete the evaluation form. It is expected that each of these learning activities will take participants approximately 2-5 hours to complete. Current topics are listed on the order form (below).

Group Format

Eleven risk management modules, a nurse leadership development course, and modules about clinical evaluation of child physical and sexual abuse (described in more detail below) are designed to be used in a group format. These group format activities, requiring someone on the staff to identify him/herself as the coordinator and discussion leader, include background material for the coordinator, goals and objectives, and ideas to promote active participation of the group. To obtain continuing education credits, the coordinator/discussion leader, after following the format provided, must submit the attendance list and completed evaluations to the Clinical Support Center.

Each of the Risk Management modules includes four unique case histories involving tort claims against the Indian Health Service, as well as background information for the designated discussion leader, and suggested questions to encourage active dialogue about the issues presented. Each module stands on its own; use of all modules is not required to obtain credit. IHS- and tribal-employed physicians, physician assistants, nurse practitioners, and nurses can earn continuing education (CE) credit using these modules.

The Nurse Leadership Development course is designed to be offered over several months' time. Each of the 16 modules in this continuing education activity includes a lesson plan, objectives, background information for the discussion leader, a suggested bibliography that participants may read to enable them to be actively involved in the learning process, evaluation forms, and more. The purpose of this course is to enhance the leadership and management skills of registered nurses. To ensure the success of this activity, it is important to have the Director of Nurses' and nursing supervisors' commitment. In addition, the nursing staff needs to be involved in the needs assessment and initial planning so that they feel this is something they want to be actively involved with. CE credit for this activity is available for nurses only.

The modules on child physical and sexual abuse include slides and an audiotape. Continuing education credit is available for physicians, physician assistants, and nurses

CE Accreditation

These activities have been planned and produced in accordance with the criteria established by the Accreditation Council for Continuing Medical Education (ACCME), the American Nurses Credentialing Center Commission on Accreditation (ANCCCA), and the American Council on Pharmaceutical Education (ACPE). The Indian Health Service Clinical Support Center is the accredited sponsor.

How to Obtain Materials

Health care professionals employed by Indian health programs may request these continuing education materials by completing the coupon below and sending it to the IHS Clinical Support Center, 1616 East Indian School Road, Suite 375, Phoenix, Arizona 85016 (fax: 602-640-2138).

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When ordering materials, please check no more than three items per order.

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❑ Management of Cancer Pain

Group Discussion Format (risk management modules)

❑ Negligence
❑ Informed Consent
❑ Golden Rules of Risk Management
❑ Tort Claims
❑ Documentation: The Defensible Medical Records
❑ Reducing the Incidence of Medication Errors
❑ Medical Malpractice
❑ Credentials and Clinical Privileging
❑ Federal Government Liability for Contract Providers
❑ Issues Involving Contract Health Services
❑ Informed Consent Revisited

Group Discussion Format (other)

❑ Nurse Leadership Development
❑ Evaluation of Child Physical Abuse
❑ Evaluation of Child Sexual Abuse

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The following is an updated MEDLINE search on Native American medical literature. At the end of each cited article, you will find a unique identifying (UI) number. For those of you who may wish to obtain a copy of a specific article, this can be facilitated by giving the librarian nearest you the UI number as well as the complete citation.

If your facility lacks a library or librarian try calling your nearest university library, the nearest state medical association, or the National Library of Medicine (1-800-272-4787) to obtain information on how to access journal literature within your region. Bear in mind that most local library networks function on the basis of reciprocity and, if you do not have a library at your facility, you may be charged for services provided.

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